

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

CM11890

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

INTERNATIONAL APPLICATION NO.  
PCT/US97/05008INTERNATIONAL FILING DATE  
27 March 1997PRIORITY DATE CLAIMED  
30 March 1996

## TITLE OF INVENTION

Disposable Absorbent Article With Wings Predisposed Towards Their In-Use-Position

## APPLICANT(S) FOR DO/EO/US

SCHMITT, Achim; ; ;

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application was filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☒ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

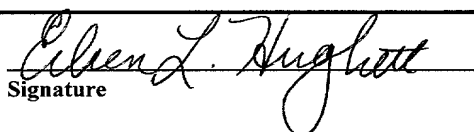
Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☒ A change of power of attorney and/or address letter.
16. ☐ Other items or information:

"Express Mail" mailing label number *Em032707339US*Date of Deposit *30 Sept. 1998*

I hereby certify that this paper/fee is being deposited with  
the United States Postal Service "Express Mail Post Office  
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*Donna L. Buys*  
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Signature

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO.		ATTORNEY'S DOCKET NUMBER	
		PCT/US97/05008		CM1189Q	
				CALCULATIONS PTO USE ONLY	
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$720	
Surcharge of \$130.00 for furnishing the oath or declaration later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$0	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	10-20 =	0	x \$22.00	\$0	
Independent Claims	1-3 =	0	x \$78.00	\$0	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			\$250.00	\$0	
TOTAL OF ABOVE CALCULATIONS =				\$720	
Processing fee of \$130.00 for furnishing the English translation later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$0	
TOTAL NATIONAL FEE =				\$720	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28,3.31). \$40.00 per property +				\$0	
TOTAL FEES ENCLOSED =				\$720	
				Amount to be refunded	\$
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a. [ ] A check in the amount of \$ ____ to cover the above fees is enclosed.					
b. [ x ] Please charge my Deposit Account No. <u>16-2480</u> in the amount of \$ <u>720</u> to cover the above fees. A duplicate copy of this sheet is enclosed.					
c. [ x ] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>16-2480</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO:					
S.W. Miller, Patent Attorney Patent Division The Procter & Gamble Company Winton Hill Technical Center 6083 Center Hill Avenue Cincinnati, OH 45224			 Signature  Eileen L. Hughett Name 34,352 Registration Number		

09/242014  
305 Rec'd PCT/PTO 30 SEP 1998

Case CM-1189Q

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the matter of

U.S. National Phase Entry  
Under 35 USC 371 from  
the International Application of  
SCHMITT, Achim  
Int'l Application No. PCT/US97/05008  
Filed in the RO/US on 27 March 1997  
Entitled: Disposable Absorbent Articles With Wings  
Predisposed Towards Their In-Use-Position

: "Express Mail" mailing label number: EM032707339US  
: Date of Deposit: 30 Sept. 1998  
: I hereby certify that this paper and/or fee is being  
: deposited with the United States Postal Service Express  
: Mail Post Office to Addressee service under 37 CFR 1.10  
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: Name  
: Donna L. Butts  
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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
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Dear Sir:

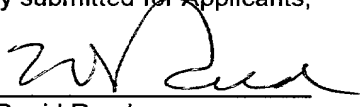
Before computing the fees for entering the captioned International Application into the U.S. National Phase, please enter the following amendments **IN THE CLAIMS**:

- \* In each one of Claims 1, 2, 3, 5, 6, 7, 8, 9 and 10 please replace the phrase "characterized in that" with --wherein--.
- \* In Claim 3 please replace the phrase "any of the preceding claims" with --Claim 2--.
- \* In Claim 5 please replace the phrase "claims 1 or 2" with --Claim 2--.
- \* In Claim 10 please replace the phrase "claim 3, 4, 5, 6, 7, 8 or 9" with --Claim 9--.

The support for these amendments is found in the claims as originally filed. These amendments are being entered to bring the claims into conformance with, *inter alia*, 37 CFR §1.75; no new matter is added.

Respectfully submitted for Applicants,

By:

  
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**DISPOSABLE ABSORBENT ARTICLE WITH WINGS PREDISPOSED  
TOWARDS THEIR IN-USE-POSITION**

FIELD OF THE INVENTION

The present invention relates to disposable absorbent articles such as sanitary napkins, pantliners and incontinence pads that have side wrapping elements, also called wings on each longitudinal side edge of the article for protection of the side edges of the wearer's undergarment. The side wrapping elements are joined to the absorbent article such that they are predisposed towards their in-use-position, with the outermost edge of the side wrapping elements towards the longitudinal centre line of the article. In this configuration the side wrapping elements can be unfolded by pulling the outermost edge of each side wrapping element in a transverse direction and applying the unfolded article to the crotch position of the wearers undergarment. The predisposition of the side wrapping elements will then support their folding around the undergarment side edges or even perform this task automatically.

BACKGROUND OF THE INVENTION

Absorbent articles such as sanitary napkins, pantliners, and incontinence pads are devices that are typically worn in the crotch region of an undergarment. These devices are designed to absorb and retain liquid and other discharges from the human body and to prevent body and clothing soiling. Sanitary napkins are a type of absorbent article worn by women in a pair of panties which is normally positioned between the wearer's legs, adjacent to the perennial area of the body. Sanitary napkins in particular with side wrapping elements, often also referred to as side flaps or wings, are disclosed in the literature and are available in the marketplace.

Generally when sanitary napkins are provided with side flaps, the side flaps extend laterally from a central absorbent means and are intended to be folded around the edges of the wearer's panties in the crotch region. The side flaps can be provided with an attachment means for either affixing them to the underside of the wearer's panties or to the opposing side flap. The side flaps are particularly effective for preventing exudates from soiling the edges of the wearer's panties.

- Sanitary napkins having wings or side flaps of various types are disclosed in U.S. Patent 4,687,478, entitled "Shaped Sanitary Napkin With Flaps", U.S. Patent 4,608,047, entitled "Sanitary Napkin Attachment Means", U.S. Patent 4,589,876, entitled "Sanitary Napkin" and its Re-examination Patent No. B1 4,589,876, U.S. Patent 4,285,343, entitled "Sanitary Napkin". Sanitary napkins having wings are commonly viewed as providing good protection against soiling. Typically the side flaps are provided on the sanitary napkins by either being attached to the garment facing surface of the absorbent article or by integrally extending from the lateral side edges of the absorbent article.
- Protective side flaps according to the prior art are provided such that their relaxed or predisposed position is assumed when the wings or flaps extend away from side edge of the main body portion of the absorbent article.

- The side flaps are also typically folded inwards below or above the absorbent article for delivery such that a packaging can be provided to accommodate the basic width of the article without the side flaps. Tucked side flaps below the backsheet of the article which address this situation are known from PCT application PCT/US 9404926, PCT/US 9404927 and PCT/US 9404943. Alternative embodiments of tucked side wrapping elements are disclosed in European application 95114720.6.

In order to unfold the side flaps from this delivery position the user has to grab the edge of each side flap and unfold it into the basic flat position in order to place the absorbent article into the undergarment and fold the wings (against

their predisposition) around the side edges of the crotch region of the undergarment.

5 EP-A-337438 discloses an attachment means for sanitary napkins by which resilient hinges are introduced to clamp the side edge of a wearers undergarments. This system suffers from the desire to resiliently attach the article to the crotch portion of the undergarment and hence requiring a hinge material which lacks comfort and can cause chaffing or skin irritation to the wearer.

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The present invention addresses the problems of various available versions of side wrapping elements and improves their function in respect to soiling protection, convenience for the wearer, consistency of the crotch width of the article in use and maintains the comfort and non-irritation properties of the conventional side flaps.

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Thus an objective of the present invention is to provide an absorbent article such as a sanitary napkin which is provided with an alternative to conventional side flaps by having a predisposition towards the in-use-position of the side flaps. It is another objective of the present invention to provide sanitary napkins with a defined crotch width after application to an undergarment independent of the various dimensions of undergarments and/or habits of wearers.

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These and other objectives of the present invention will be more readily apparent when considered in reference with the following description and when taken in conjunction with the accompanying drawings.

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#### SUMMARY OF THE INVENTION

30 The present invention relates to disposable absorbent articles for wearing in the crotch portion of an undergarment, in particular to sanitary napkins or pantliners or adult continents inserts. The crotch portion of an undergarment comprises side edges which form part of the leg opening of the undergarment. The absorbent articles according to the present invention have a longitudinal and a transverse axis and comprise a main body portion which has longitudinal side

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edges substantially extending parallel to the longitudinal axis and transverse side edges substantially extending parallel to the transverse axis of the main body portion.

5 The main body portion further has a wearer facing surface which is oriented towards the wearer of such articles and a garment facing surface which is generally oriented towards the undergarment of the wearer.

10 The absorbent article according to the present invention comprises side wrappings elements which are wrapped around the side edges of the crotch portion of the undergarment. In this position the side wrapping elements have an in-use-position. According to the present invention the side wrapping elements have a predisposition so as to assume the in-use-position. This predisposition can be achieved by joining the side wrapping elements to the main body portion already in the in-use-position.

15 If the side wrapping elements are provided as separate pieces from the main body portion they are attached to the main body portion in their in-use-position, preferably to the garment facing surface and along the longitudinal side edges of the body portion of the disposable absorbent article.

20 In an alternative embodiment of the absorbent article the side wrapping elements are integral with the main body portion extending transversely away from the lateral axis of the absorbent article. The side wrapping elements are then folded along a foldline into the in-use-position and in order to provide the predisposition they are attached to the garment facing surface of the main body portion. It is preferred in this embodiment that the attachment is not longer than 50 % of the length of the foldline of the side wrapping elements, preferably the midpoint of the line of attachment is in the vicinity of the midpoint of the foldline, for example within 10mm from the midpoint of the foldline.

25 30 If the side wrapping elements are integral with the main absorbent body of the absorbent article they can be integral extensions of the topsheet which provides the wearer facing surface of the main body portion and/or integral extensions of the backsheet of the main body portion which provide the garment facing surface of the main body portion. In this embodiment it is preferred to have the side

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wrapping elements attached to the main body portion along the common portion of the longitudinal side edges of the main body portion and the side wrapping elements. The common portion of this attachment of the side wrapping elements to the main body portion can be preferably, at least partially between the  
5 foldline of the side wrapping elements into the in-use-position and the longitudinal axis of the absorbent article and thereby result in a non linear attachment line following the curvature of the main body portion. In such a case, if the attachment line is continuous, it is preferred that the material between the longitudinal side edges of the main body portion and the foldline where the side  
10 wrapping elements are folded into the in-use-position including the foldline itself is severed from the disposable absorbent article.

According to the present invention the attachment of the side wrapping elements to the main body portion of any of the embodiments can be provided by  
15 adhesive means or by welding of the contacting materials where the side wrapping elements touch the garment facing surface of the main body portion.

#### BRIEF DESCRIPTION OF THE DRAWINGS

20 Figure 1 is a top plan view of a conventional sanitary napkin having side wrapping elements.

Figure 2 is a top plan view of a sanitary napkin according to the present invention with the side wrapping elements predisposed into their in-use-position on the garment facing surface of the sanitary napkin.

25 Figure 3 is a cross sectional view along the transverse axis T of Fig. 2 showing an embodiment according to the present invention.

Fig. 4 is a cross sectional view of a preferred embodiment according to the present invention which can be derived by further processing the embodiment as shown in Fig. 3.

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#### DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows an embodiment of a disposable sanitary napkin 20 as known in the art. The present invention relates to absorbent articles, such as sanitary  
35 napkins, panty liners and incontinence pads and will be explained in the following



by reference to sanitary napkins. According to the present invention sanitary napkins have a main body portion 21 and a pair of side wrapping elements 50 which wrap the side edges of the crotch portion of wearer's panties when the wearer places the sanitary napkin in the undergarments.

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The sanitary napkin 20 has two surfaces, a liquid pervious wearer facing surface and a preferably liquid impervious, garment facing surface. The sanitary napkin 20 is shown in FIG. 1 and 2 as viewed from its wearer facing surface.

10 The sanitary napkin 20 has two axes, a longitudinal axis L and a transverse axis T. The term "longitudinal", as used herein, refers to a line, axis or direction in the plane of the sanitary napkin 20 that is generally aligned with (e.g., approximately parallel to) a vertical plane which bisects a standing wearer into left and right body halves when the sanitary napkin 20 is worn. The terms "transverse" or  
15 "lateral" used herein, are interchangeable, and refer to a line, axis or direction which lies within the plane of the sanitary napkin 20 that is generally perpendicular to the longitudinal direction.

FIG. 1 shows the main body portion 21 of the sanitary napkin 20. The main body  
20 portion 21 comprises the portion of the sanitary napkin without the side wrapping elements 50. The main body portion 21 has two spaced apart longitudinal side edges 23, which can be linear or curved as shown in FIGS. 1 or 2. A detailed description of a sanitary napkin and its main body portion is contained in U.S. Patent 4,690,680.

25

The main body portion 21 of the sanitary napkin 20 can be of any thickness, including relatively thick, relatively thin, or even very thin. The sanitary napkin 20 shown is preferably a relatively thin sanitary napkin, preferably an "ultra-thin" sanitary napkin. An "ultra-thin" sanitary napkin 20 as described in U.S. Patents  
30 4,950,264 and 5,009,653 preferably has a calliper of less than about 3 millimetres.

FIGS. 3 or 4 best show the individual components of the main body portion 21 of the sanitary napkin 20 of the present invention. The dimensions as shown in Fig.  
35 3 or 4 should be considered as schematic only since some details are enlarged

while other parts of the sanitary napkin may only be indicated or even not included in the Figures.

5 The main body portion 21 of the sanitary napkin generally comprises at least three primary components. These include a liquid pervious topsheet 38, a preferably liquid impervious backsheet 40, and an absorbent structure or core 42 positioned between the topsheet 38 and the backsheet 40. There are also occasions, however, when one or preferably more of these components, such as the backsheet and topsheet, can be replaced by a component that serves as part  
10 of the side wrapping elements 50 described below. The topsheet, the backsheet, and the absorbent core may be assembled in a variety of configurations known in the art (including so called "sandwich" products and "tube" products).

15 Several preferred sanitary napkin configurations are described generally in U.S. Patent 4,321,924, "Bordered Disposable Absorbent Article"; U.S. Patent 4,425,130, "Compound Sanitary Napkin"; U.S. Patent 4,950,264, "Thin, Flexible Sanitary Napkin"; U.S. Patent 5,308,346, "Elasticised Sanitary Napkin"; U.S. Patent Application Serial No. 08/096,121 entitled "Absorbent Articles Having  
20 Panty Covering Components That Naturally Wrap the Sides of Panties" filed July 22, 1993; and PCT Patent Application No. U.S. 94/10200 entitled "Absorbent Articles Having Panty Covering Components Comprising Extensible Web Materials Which Exhibit Elastic-Like Behaviour". The main body portion 21 of the sanitary napkin may also be comprised of one or more extensible components  
25 such as those sanitary napkins, and the like described in PCT Publication Nos. WO 93/01785 and 93/01786.

In general the three primary components of the main body portion need to satisfy the following:

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The topsheet is compliant, soft feeling, and non-irritating to the wearer's skin. The topsheet also can have elastic characteristics allowing it to be stretched in one or two directions in portions of the topsheet or throughout its extension. Further, the topsheet is fluid pervious permitting fluids (e.g., menses and/or  
35 urine) to readily penetrate through its thickness. A suitable topsheet can be

manufactured from a wide range of materials such as woven and non woven materials; polymeric materials such as apertured formed thermoplastic films, apertured plastic films, and hydroformed thermoplastic films; and thermoplastic scrims. Suitable woven and non woven materials can be comprised of natural  
5 fibers (e.g., wood or cotton fibers), synthetic fibers (e.g., polymeric fibers such as polyester, polypropylene, or polyethylene fibers) or from a combination of natural and synthetic fibers or bi-/multi-component fibers.

Preferred topsheets for use in the present invention are typically selected from  
10 high loft nonwoven topsheets and apertured formed film topsheets. Apertured formed films are especially preferred for the topsheets because they are pervious to body exudates and yet non absorbent and have a reduced tendency to allow fluids to pass back through and rewet the wearer's skin. Thus, the surface of the formed film that is in contact with the wearer remains dry, thereby reducing body  
15 soiling and creating a more comfortable feel for the wearer. Suitable formed films are described in U.S. Patent 3,929,135; U.S. Patent 4,324,246; U.S. Patent 4,342,314; U.S. Patent 4,463,045; and U.S. Patent 5,006,394. Particularly preferred micro apertured formed film topsheets are disclosed in U.S. patent 4,609,518 and U.S. patent 4,629,643. A preferred topsheet for the present  
20 invention comprises the formed film described in one or more of the above patents and marketed on sanitary napkins by The Procter & Gamble Company of Cincinnati, Ohio as "DRI-WEAVE".

Topsheets having not a homogeneous distribution of liquid passage ways but  
25 only a portion of the topsheet comprising liquid passage ways are also contemplated by the present invention. Typically such topsheets would have the liquid passage ways oriented such that they result in a centrally permeable and peripherally impermeable topsheet for liquids.

30 The wearer facing surface of the formed film topsheet can be treated so as to help liquid to transfer through the topsheet. In a preferred embodiment, surfactant is incorporated into the polymeric materials of the formed film topsheet such as is described in PCT-publication WO 93/09741. Alternatively, the wearer facing surface of the topsheet can be made hydrophilic by treating it with a surfactant

such as is described in U.S. 4,950,254. It has also been found that film topsheets can be treated to be hydrophobic which improves their dryness appearance.

Another alternative are so called hybrid topsheets which incorporate fibrous and film like structures particularly useful embodiments of such hybrid topsheets are disclosed in PCT publications WO 93/09744; WO 93/11725 or WO 93/11726.

The topsheet typically extends across the whole of the absorbent structure and outside the area coextensive with the absorbent structure. The topsheet can extend and form part or all of the preferred side flaps, side wrapping elements or wings as shown in Fig.3.

When referring to the topsheet a multi layer structure or a mono layer structure is contemplated. The hybrid topsheet mentioned above is such a multi layer design but other multi layer topsheets such as primary and secondary topsheet designs are also considered.

The absorbent structure can include the following components: (a) optionally a primary fluid distribution layer preferably together with a secondary optional fluid distribution layer; (b) a fluid storage layer; (c) optionally a fibrous ("dusting") layer underlying the storage layer; and (d) other optional components.

#### a Primary/Secondary Fluid Distribution Layer

One optional component of the absorbent structure according to the present invention is a primary fluid distribution layer and a secondary fluid distribution layer. The primary distribution layer typically underlies the topsheet and is in fluid communication therewith. The topsheet transfers the acquired fluid to this primary distribution layer for ultimate distribution to the storage layer. This transfer of fluid through the primary distribution layer occurs not only in the thickness, but also along the length and width directions of the absorbent product. The also optional but preferred secondary distribution layer typically underlies the primary distribution layer and is in fluid communication therewith. The purpose of this secondary distribution layer is to readily acquire fluid from the primary distribution layer and transfer it rapidly to the underlying storage layer. This helps the fluid capacity of the underlying storage layer to be fully

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Positioned in fluid communication with, and typically underlying the primary or secondary distribution layers, is a fluid storage layer. The fluid storage layer can comprise any usual absorbent material or combinations thereof. It preferably comprises absorbent gelling materials usually referred to as "hydrogel", "superabsorbent", hydrocolloid" materials in combination with suitable carriers.

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The absorbent gelling materials are capable of absorbing large quantities of aqueous body fluids, and are further capable of retaining such absorbed fluids under moderate pressures. The absorbent gelling materials can be dispersed homogeneously or non-homogeneously in a suitable carrier. The suitable carriers, provided they are absorbent as such, can also be used alone.

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Suitable absorbent gelling materials for use herein will most often comprise a substantially water-insoluble, slightly cross-linked, partially neutralised, polymeric gelling material. This material forms a hydrogel upon contact with water. Such polymer materials can be prepared from polymerizable, unsaturated, acid-containing monomers which are well known in the art.

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25 Suitable carriers include materials which are conventionally utilised in absorbent structures such as natural, modified or synthetic fibers, particularly modified or non-modified cellulose fibers, in the form of fluff and/or tissues. Suitable carriers can be used together with the absorbent gelling material, however, they can also be used alone or in combinations. Most preferred are tissue or tissue laminates in the context of sanitary napkins/panty liners.

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An embodiment of the absorbent structure made according to the present invention comprises a double layer tissue laminate formed by folding the tissue onto itself. These layers can be joined to each other. Absorbent gelling material or other optional material can be comprised between the layers.

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[illegible]

Modified cellulose fibers such as the stiffened cellulose fibers can also be used. Synthetic fibers can also be used and include those made of cellulose acetate, polyvinyl fluoride, polyvinylidene chloride, acrylics (such as Orlon), polyvinyl acetate, non-soluble polyvinyl alcohol, polyethylene, polypropylene, polyamides (such as nylon), polyesters, bicomponent fibers, tricomponent fibers, mixtures thereof and the like. Preferably, the fiber surfaces are hydrophilic or are treated to be hydrophilic. The storage layer can also include filler materials, such as Perlite, diatomaceous earth, Vermiculite, etc., to improve liquid retention.

If the absorbent gelling material is dispersed non-homogeneously in a carrier, the storage layer can nevertheless be locally homogenous, i.e. have a distribution gradient in one or several directions within the dimensions of the storage layer. Non-homogeneous distribution can also refer to laminates of carriers enclosing absorbent gelling materials partially or fully.

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#### c Optional Fibrous ("Dusting") Layer

An optional component for inclusion in the absorbent structure according to the present invention is a fibrous layer adjacent to, and typically underlying the storage layer. This underlying fibrous layer is typically referred to as a "dusting" layer since it provides a substrate on which to deposit absorbent gelling material in the storage layer during manufacture of the absorbent structure. Indeed, in those instances where the absorbent gelling material is in the form of macro structures such as fibers, sheets or strips, this fibrous "dusting" layer need not be included. However, this "dusting" layer provides some additional fluid-handling capabilities such as rapid wicking of fluid along the length of the pad.

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#### d Other Optional Components of the absorbent structure

The absorbent structure according to the present invention can include other optional components normally present in absorbent webs. For example, a reinforcing scrim can be positioned within the respective layers, or between the respective layers, of the absorbent structure. Such reinforcing scrims should be of such configuration as to not form interfacial barriers to fluid transfer. Given the structural integrity that usually occurs as a result of thermal bonding, reinforcing scrims are usually not required for thermally bonded absorbent structures.

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Another component which can be included in the absorbent structure according to the invention and preferably is provided close to or as part off the primary or secondary fluid distribution layer are odor control agents. Active carbon and/or other odor control agents, in particular suitable zeolite and/or clay materials, are optionally incorporated in the absorbent structure. These components can be incorporated in any desired form but often are included as discrete particles.

The backsheet primarily prevents the exudates absorbed and contained in the absorbent structure from wetting articles that contact the absorbent product such as underpants, pants, pyjamas and undergarments. The backsheet is preferably impervious to liquids (e.g. menses and/or urine) and is preferably manufactured from a thin plastic film, although other flexible liquid impervious materials can also be used. As used herein, the term "flexible" refers to materials that are compliant and will readily conform to the general shape and contours of the human body. The backsheet also can have elastic characteristics allowing it to stretch in one or two directions.

The backsheet typically extends across the whole of the absorbent structure and can extend into and form part of or all of the preferred sideflaps, side wrapping elements or wings as shown in Figure 3.

The backsheet can comprise a woven or non woven material, polymeric films such as thermoplastic films of polyethylene or polypropylene, or composite materials such as a film-coated non woven material. Preferably, the backsheet is a polyethylene film having a thickness of from about 0.012 mm (0.5 mil) to about 0.051 mm (2.0 mils).

Exemplary polyethylene films are manufactured by Clopay Corporation of Cincinnati, Ohio, under the designation P18-0401 and by Ethyl Corporation, Visqueen Division, of Terre Haute, Indiana, under the designation XP-39385. The backsheet is preferably embossed and/or matte finished to provide a more clothlike appearance. Further, the backsheet can permit vapours to escape from the absorbent structure, i.e. be breathable, while still preventing exudates from passing through the backsheet. Also breathable backsheets comprising several

layers, e.g. film plus non-woven structures or multilayered films, can be used and are preferably joined to each other.

## 5 Side flaps or side wrapping elements

The side wrapping elements 50 can be of any suitable size and shape. The side wrapping elements 50 of the present invention may have any of the dimensions and characteristics set forth for the undergarment covering components in the aforementioned publications.

10 The side wrapping elements 50 can, as shown in FIG. 3, be integral with the main body portion 21. Alternatively the side wrapping elements 50 can, however, be joined to the main body portion 21 in any suitable manner.

15 The term "joined", as used herein, encompasses configurations in which an element is directly secured to another element by affixing the element directly to the other element; configurations in which the element is indirectly secured to the other element by affixing the element to intermediate member(s) which in turn are affixed to the other element; and configurations in which one element is  
20 integral with another element, i.e., one element is essentially part of the other element.

The side wrapping elements 50 can be made from any of the materials used in the construction of the main body portion 21 of the sanitary napkin. The side wrapping elements 50 in the embodiment shown in FIG.3 preferably comprise a laminate of two materials such as the topsheet and the backsheet material. Separately attached side wrapping elements can be made in the same fashion or from a different laminate, e.g. of a soft extensible coverstock material such as an extensible spunbond nonwoven web or a soft extensible formed film, an optional intermediate layer such as a three dimensional formed film, and a backing such as a polyethylene film backsheet material.

- Suitable material for the side wrapping elements include those useful to provide the topsheet, the backsheet and optionally intermediate layers. In this context 35 suitable nonwoven webs include a product known as Spunbond PE, which can



be obtained from Polybond, Incorporated of Waynesboro, VA, USA and a product known as COROLIND PE, which can be obtained from Corovin GMBH of Germany.

5 As intermediate layer or as topsheet material a variation of a three dimensional formed film known as DRI-WEAVE can be used. DRI-WEAVE is used as a topsheet on sanitary napkins manufactured by the Procter & Gamble Company, Cincinnati, Ohio under U.S. Patents 4,342,314 and 4,463,045 . The three dimensional film for use in the side wrapping elements can be apertured or not  
10 apertured all the way through as in the case of DRI-WEAVE topsheet material. For integral side wrapping elements the DRI-WEAVE topsheet can be formed so that the apertures are closed off on the longitudinal side of the film which forms the wearer facing side of the side wrapping elements.

15 The polyethylene backsheet material can be for example a film as mentioned above. This polyethylene film can be joined to form the laminate of the side wrapping elements together with the nonwoven and/or the formed film by any suitable method such as by a spiral application of adhesives or slot coating, or it can be welded or extruded together.

20 The composite laminate preferably has a caliper of between 0.13 - 1.5 mm and is capable of extending between about 25-80% without tearing. The particular laminate is chosen to provide a soft body-contacting surface, good extensibility if extensibility is desired, good resistance to folding and crumpling and a liquid  
25 barrier.

The side wrapping elements 50 can be integral extensions of the topsheet 38 and backsheet 40 of the main body portion 21 as shown in Fig. 3. In other embodiments, instead of being integral, the side wrapping elements 50 can  
30 comprise a single or more separate components which are attached to the main body portion 21. They are preferably attached to the garment facing side of the main body portion 21 but can also be attached along the longitudinal side edge 23 of the main body portion 21 of the article 20.

According to the present invention the side wrapping elements 50 have a predisposition to as to assume the in-use-position. The in-use-position is similar to that shown in Fig. 3 or Fig. 4 in a cross sectional perspective where the crotch portion of the undergarment would be wrapped between the side wrapping elements 50 and the garment facing surface of the backsheet 40.

In order to achieve this predisposition it is not desirable according to the present invention to employ resilient hinges. In fact the use of an additional resilient hinge material in order to provide the side wrapping element 50 with the ability to clamp the napkin to the side edges of the crotch portion of the undergarment is undesirable according to the present invention since the additional resilient material can cause chaffing or it can be irritating to the sensitive skin on the inside of the thighs of their wearer.

If the side wrapping elements 50 are integral with the main body portion 21 of the sanitary napkin they can be formed by integral extensions as indicated above of the backsheet 40 and the topsheet 38 of the main body portion. Such a design is shown in a cross sectional view in Fig. 3.

The side wrapping elements 50 are then folded along a foldline 25 such that they depend from the main body portion on the side of the garment facing surface of the main body portion. The folding line 25 does not need to be a straight line but usually will be a straight line for geometry and material reasons and for simplicity of manufacturing.

This foldline 25 can be, but does not have to be, identical to the longitudinal side edges 23 of the main body portion 21 of the sanitary napkin 20. The main body portion 21 of the disposable absorbent article according the present invention can have and preferably has non-linear side edges. The main body portion essentially follows the peripheral outline of the absorbent structure and hence can for example assume a shape of a dog bone, hourglass, oval, have a different transversal dimension in the front and the rear end of the main body portion or it can be non-symmetrical in respect to the transverse axis.

Such a shape of the main body portion 21 is present in the prior art embodiment shown in Fig. 1. This prior art embodiment has integral side wrapping elements which are simply extensions of the components of the main body portion. The side wrapping elements are joined such that they are predisposed towards the flat, stretched out position shown in Fig. 1. This position can be considered as precursor of embodiments according to the present invention shown in Fig. 2, 3 or 4.

In case of a shaped main body portion 21 and a strait folding line 25 there will be a portion of the side wrapping element which is folded onto itself but remain outside the perimeter of the main body portion 21. Such a situation can be seen in the cross sectional view of Fig. 3. In principal this material can be considered excess material but need not be removed. However in a preferred embodiment according to the present invention this material, which is located between the folding line 25 and the longitudinal side edges 23 of the main body portion 21, is at least partially severed from the absorbent article 20 as can be seen in Fig 4.

In order to provide the side wrapping element 50 with there predisposition towards the in-use-position it is provided with an attachment 27 to the garment facing surface of the main body portion. This attachment 27 can be provided by any means usual in the art such as by adhesive means by crimping, by soldering or by welding. Preferably this attachment 27 is extending along the longitudinal side edge 23 of the main body portion 21. However the attachment 27 can also be closer to or further away from the longitudinal axis than the longitudinal side edges 23 of the main body portion 21.

The attachment 27 need not be continues but can be provided in a discontinues fashion such as dots, dashes or points. In such a case it will be apparent to those skilled in the art that in order to maintain the primary function of side wrapping elements it is necessary to maintain a continues connection between the main body portion and the side wrapping elements to prevent soiling of the side edges of the crotch portion of the undergarment.

This can be achieved for integral side wrapping elements by maintaining the foldline 25 intact. For such an embodiment it is to preferred that the length of the

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1977-1978		1978-1979		1979-1980		1980-1981		1981-1982		1982-1983		1983-1984		1984-1985		1985-1986		1986-1987		1987-1988		1988-1989		1989-1990		1990-1991		1991-1992		1992-1993		1993-1994		1994-1995		1995-1996		1996-1997		1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204	
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Typically the side wrapping elements 50 comprise attachment means (not shown in the drawings) which can be any attachment means typically used in the art. This includes such attachments as the male part of mechanical fasteners, so called hooks, which engage into the fibrous surface of the undergarment as the complementary female loop part. More typical the attachment means is a pressure sensitive adhesive well known in the art which realisably adheres to the surface of the undergarment when placed in there. Suitable adhesives are Savare LA203 and LA303 of the Savare I.C. company of Milan in Italy, Coramelt 867 by Koemmerling in Pirmasens in Germany and Fuller H-2238ZP manufactured by the H.B. Fuller Co of Lueneburg in Germany. Suitable adhesive fasteners are also described in U.S. Patent 4,917,697.

Prior to use the attachment means are protected by joining them to a release surface. The release surface has to be selected in accordance with the selection of the attachment means. For an adhesive attachment means a silicon coated release paper strip or more preferably a coating of the release compound onto the surface which is in contact with the attachment means in the article configuration as provided to the wearer can be employed.

#### ALTERNATIVE EMBODIMENTS

Numerous alternative embodiments of the present invention are possible. For example, the side wrapping elements are preferably mirror images of each other, and are symmetrical about the longitudinal axis. However, it should be understood that the shape and location of the side wrapping elements described herein are those of a preferred embodiment, and other embodiments are also possible. For example, while the side wrapping elements 50 are shown as extending symmetrical from each longitudinal edge of the main body portion, there may be one side wrapping element extending further than the other one. Further, the side wrapping elements 50 may be offset along the longitudinal centerline more towards one transverse end edge of the main body portion than the other.

The terms "panty liner" refer to absorbent articles that are less bulky than sanitary napkins which are generally worn by women between their menstrual



### Claims

- 5 1) Disposable absorbent article (20) for wearing in the crotch portion of an undergarment, said crotch portion comprising side edges which form part of the leg opening of said undergarment, said article (20) having a longitudinal axis (L) and a transverse axis (T), said article comprising a main body portion (21) having longitudinal side edges (23) substantially extending parallel to said longitudinal axis (L) and having transverse side edges (22) substantially extending parallel to said transverse axis (T), said main body portion (21) further having a wearer facing surface and a garment facing surface, and said article comprising side wrapping elements (50) having an in-use-position in which said side wrapping elements (50) wrap said side edges of said crotch portion, said article (20) being characterised in that said side wrapping elements (50) have a predisposition so as to assume said in-use-position.
- 10 2) Disposable absorbent articles (20) according to claim 1 characterised in that said predisposition is provided by joining said side wrapping elements (50) to said main body portion in said in-use-position.
- 15 3) Disposable absorbent article (20) according to any of the preceding claims characterised in that said side wrapping elements (50) are provided separately from said main body portion and are attached to said main body portion (21).
- 20 4) Disposable absorbent article (20) according to claim 3 wherein said side wrapping elements (50) are attached to the garment facing surface and along the longitudinal side edges (23) of said main body portion (21) to said article.
- 25 5) Disposable absorbent article (20) according to claims 1 or 2 characterised in that said side wrapping elements (50) are integral with said main body portion (21), said side wrapping elements (50) are folded along a foldline (25) into said in-use-position and attached to said garment facing surface of said main body portion to provide said predisposition of said side wrapping elements (50).
- 30 35

6) Disposable absorbent article (20) according to claim 5 characterised in that said side wrapping elements (50) are attached to said garment facing surface along a longitudinal line (27) over a length of not more than 50% of the length of said foldline (25).

7) Disposable absorbent article (20) according to claim 6 characterised in that said longitudinal line of attachment (27) has a midpoint which is not more than 10mm from the midpoint of said foldline (25).

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8) Disposable absorbent article (20) according to claim 5 characterised in that said main body portion (21) comprises a topsheet (38) which provides said wearer facing surface, and a backsheet (40) which provides said garment facing surface, and said side wrapping elements (21) comprise integral extensions of said topsheet (38) and said backsheet (40) and said side wrapping elements (21) are folded along a foldline (25) into said in-use-position and said side wrapping elements (50) are attached to said main body portion (21) along the common portion of said longitudinal side edges (23) of said main body portion (21) and the side wrapping elements (50), said common portion being at least partially between said foldline (25) and said longitudinal axis (L).

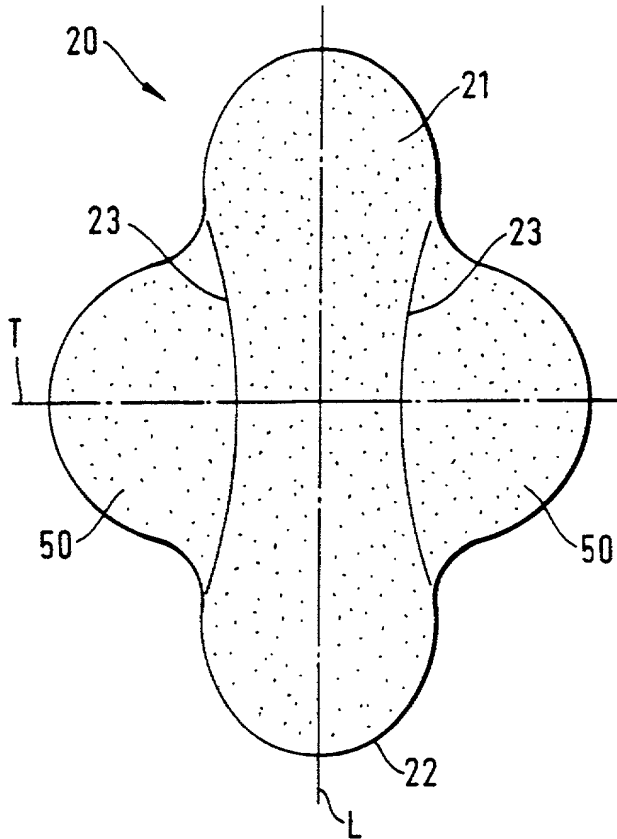
9) Disposable absorbent article (20) according to claim 8 characterised in that the material between said longitudinal side edges (23) of said main body portion (21) and said foldline (25), preferably including said foldline (25) itself, is severed from said disposable absorbent article (20).

10) Disposable absorbent article (20) according to claim 3, 4, 5, 6, 7, 8 or 9 characterised in that said attachment is provided by an adhesive means or welding of contacting materials.

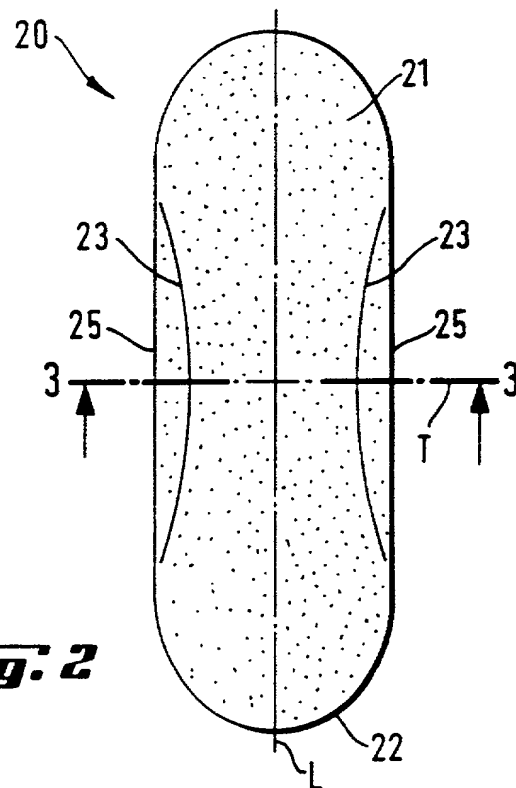
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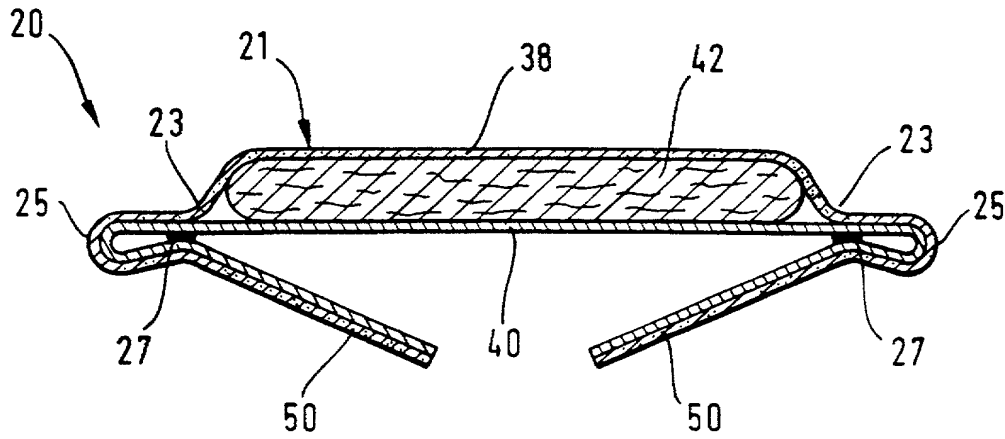
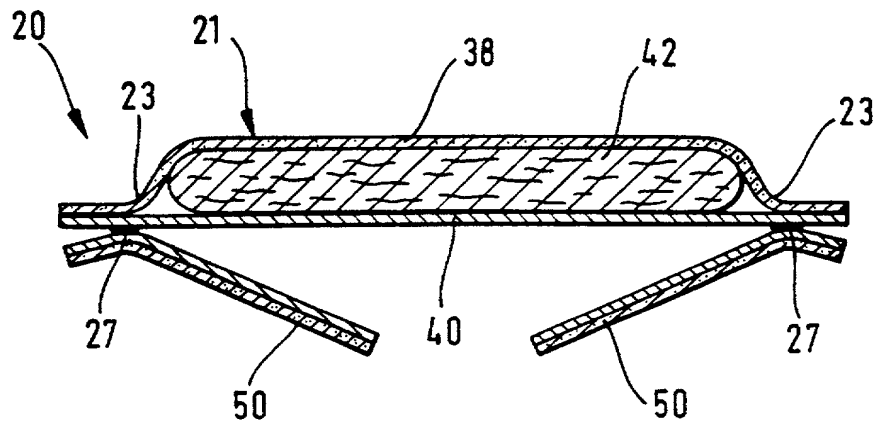




**Fig. 1**



**Fig. 2**

**Fig. 3****Fig. 4**

# DECLARATION COMBINED WITH POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

"Disposable Absorbent Article With Wings Predisposed Towards Their In-Use-Position"

bearing the above listed Procter & Gamble Company Case number, the specification of which was filed as PCT/US97/05008, designating at least the United States of America, with the United States Receiving Office on 27 March 1997.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37 Code of Federal Regulations §1.56.

I hereby claim foreign priority benefits under Title 35 United States Code §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or Inventor's certificate having a filing date before that of the application on which priority is claimed:

## PRIOR FOREIGN APPLICATION(S) TO WHICH WE CLAIM PRIORITY:

96105143.0                      EP                      30 March 1996

I hereby claim the benefit under Title 35 United States Code §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 United States Code §112, I acknowledge the duty to disclose material information as defined in Title 37 Code of Federal Regulations §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Appln. Serial No.)	(Filing Date)	(Status)(patented, abandoned)	pending,
(Appln. Serial No.)	(Filing Date)	(Status)(patented, abandoned)	pending,

I hereby appoint the following as my attorney(s) or agent(s) with full power of substitution to prosecute this application and transact all business in the Patent and Trademark office connected therewith:

Name	Registration No.	Associate Power of Attorney Attached
		<input type="checkbox"/> Yes <input type="checkbox"/> No

Jacobus C. Rasser 37,043  
Donald E. Hasse 29,387  
T. David Reed 32,931  
Eileen L. Hughett 34,352  
Timothy B. Guffey 41,048  
Emelyn L. Hiland 41,501

SEND CORRESPONDENCE TO:

T. David Reed, c/o The Procter Gamble Company (513) 627-7025

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Street City State	Zip Code

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor SCHMITT, Achim

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Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Full name of third joint inventor, if any:

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence: \_\_\_\_\_  
Citizenship: \_\_\_\_\_  
Post Office Address: \_\_\_\_\_

Full name of fourth joint inventor, if any:

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence: \_\_\_\_\_  
Citizenship: \_\_\_\_\_  
Post Office Address: \_\_\_\_\_